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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GWARTNEY, ELIZABETH A	

ART UNIT	PAPER NUMBER
1781	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,320	SCHLOTHAUER ET AL.	
	Examiner	Art Unit	
	ELIZABETH GWARTNEY	1781	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2010 and 09 December 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6-12,14-21,23-25,27,28,30-32,37 and 39-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-12,14-21,23-25,27,28,30-32,37 and 39-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 9 December 2010 has been entered.

2. Claims 39-43 have been added. Claims 1-3, 6-12, 14-21, 23-25, 27-28, 30-32, 37 and 39-43 are pending.

3. The previous 112 2nd Paragraph rejections have been withdrawn in light of applicants' amendments made 10 November 2010.

4.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in Graham **v.** John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-3, 6-12, 16-21, 23-25, 27-28, 30 and 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perry et al. ("Effect of Exopolysaccharide-Producing Cultures on Moisture Retention in Low Fat Mozzarella Cheese").

Regarding claims 1-3, Perry et al. disclose a starter culture composition for making low-fat cheese comprising Streptococcus thermophilus MR-1C and Lactobacillus delbrueckii MR-1R (Abstract, p.800/Materials and Methods/Milk and Cultures).

Given Perry et al. disclose lactic acid bacterium, Streptococcus thermophilus MR-1C and Lactobacillus delbrueckii MR-1R that are capable of producing an exopolysaccharide (EPS) (Abstract, p.799/Introduction/paragraph 3), it is clear that they intrinsically are capable of producing an enzyme that is capable of producing EPS and fermenting lactic acid. Further, given Perry et al. disclose Streptococcus thermophilus, since Streptococcus thermophilus strains are known to produce EPS (Abstract, p.799/Introduction/paragraph 3), it follows that the Streptococcus thermophilus MR-1C disclosed by Perry et al. and Streptococcus thermophilus V3 could be used interchangeably.

Regarding the method limitations recited in claims 6-8, it is noted that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.). In this case, claim 1 requires a composition comprising an EPS fermentation culture which contains a viable lactic acid microorganism capable of producing EPS. In this case, Perry et al. disclose a composition identical to that presently claimed.

Regarding claims 9 and 12, Perry et al. disclose all of the claim limitations as set forth above. Given Perry et al. disclose a composition identical to that presently claimed wherein the lactic acid bacterium is capable of producing EPS, since claim 1 does not require EPS as part of the composition, the limitations of claims 9 and 12 have been met.

Regarding claim 10, Perry et al. disclose all of the claim limitations as set forth above. While Perry et al. disclose Streptococcus thermophilus TA061, the reference does not explicitly disclose the V3 strain. However, given Perry et al. disclose the TA061 strain produces EPS, it would have been obvious to one of ordinary skill in the art to have used any strain of Streptococcus thermophilus known to produce EPS, including the V3 strain, and arrive at the present invention.

Regarding claim 11, Perry et al. disclose all of the claim limitations as set forth above. Perry et al. also disclose an adjunct culture comprising EPS producing Lactococcus lactis ssp. Cremoris . While Perry disclose Lactococcus lactis ssp. Cremoris, the reference does not explicitly disclose the 322 strain. However, given Perry et al. disclose Lactococcus lactis ssp. Cremoris produces EPS, it would be obvious to one of ordinary skill in the art to have used any strain of Lactococcus lactis ssp. Cremoris known to produce EPS, including the 322 strain, and arrive at the present invention.

Regarding claim 16, Perry et al. disclose a method of forming a low-fat Mozzarella cheese comprising adding the composition of claim 1 to milk and forming a cheese curd (p.800/Manufacturing Procedure). Perry et al. also disclose a ripened cheese product with about 60% moisture (p.800/Table 1/Starter 4).

Given Perry et al. disclose lactic acid bacterium, Streptococcus thermophilus MR-1C and Lactobacillus delbrueckii MR-1R that are capable of producing an exopolysaccharide (EPS) it is clear that the bacterium, i.e. starter culture, would intrinsically produce an enzyme that produces EPS.

Regarding claims 17-18, Perry et al. disclose all of the claim limitations as set forth above. Further, Perry et al. disclose low-fat Mozzarella cheese prepared using the composition of claim 1 (Abstract, p.800-801/Manufacturing Procedure & Cheese Analysis).

Regarding claims 19, Perry et al. disclose all of the claim limitations as set forth above and that the EPS cultures are useful to increase moisture retention in low fat Mozzarella cheese (p.804/Conclusions).

Regarding claim 20, Perry et al. disclose all of the claim limitations as set forth above. Perry et al. also disclose that the EPS starter culture significantly increases cheese moisture retention, i.e. retards whey release during curd processing (p.801/Cheese Composition).

Regarding claims 21 and 23, Perry et al. disclose all of the claim limitations as set forth above. Given Perry et al. disclose a process and starter culture identical to that presently claimed, it is clear that the recited process attributes and improved sensory, nutrition, and/or physical properties would intrinsically be displayed.

Regarding claims 24-25, Perry et al. disclose all of the claim limitations as set forth above. Given Perry et al. disclose a process for making cheese identical to that presently claimed, it is clear that that the resulting cheese product would intrinsically display the recited moisture level and moisture loss.

Regarding claim 27, Perry et al. disclose a method of forming a low-fat Mozzarella cheese comprising adding the composition of claim 1 to milk and forming a cheese curd (p.800/Manufacturing Procedure). Perry et al. also disclose a ripened cheese product with about 60% moisture (p.800/Table 1/Starter 4). Given Perry et al. disclose a method for forming low-fat Mozzarella cheese using a composition identical to that presently claimed, it is clear that the cheese curd would intrinsically contain about 50% moisture and lose less that 5% moisture as a result of ripening.

Regarding claim 28, Perry et al. disclose all of the claim limitations as set forth above and a low-fat cheese product (Abstract, p.801/Manufacturing Procedure).

Regarding claims 30, Perry et al. disclose all of the claim limitations as set forth above. Perry et al. also disclose a process for in situ production of EPS comprising providing a starter

culture composition according to claim 1, inoculating vats of milk with the starter culture composition and ripening (i.e. permitting the growth of the microorganisms). Given Perry et al. disclose EPS forming microorganisms identical to those of the present invention, it is clear that the microorganisms would intrinsically produce EPS.

Regarding claims 39-43, Perry et al. disclose all of the claim limitations as set forth above and that the low-fat Mozzarella cheese has 6.0 to 6..4% fat (p.801/Cheese Composition).

8. Claims 14 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perry et al. ("Effect of Exopolysaccharide-Producing Cultures on Moisture Retention in Low Fat Mozzarella Cheese") and further in view of Degeest et al. ("Exopolysaccharide (EPS) biosynthesis by Lactobacillus sakei 0-1: production kinetics, enzyme activities and EPS yields").

Regarding claims 14 and 32, Perry et al. disclose all of the claim limitations as set forth above. While Perry disclose EPS producing lactic acid bacterium, Streptococcus thermophilus and Lactobacillus delbrueckii, the reference does not explicitly disclose a culture selected from the recited group.

Degeest et al. teach that Lactobacillus sakei strains are known producers of EPS in food systems (p. 470-471/Abstract, Introduction).

Perry et al. and Degeest et al. are combinable because they are concerned with the same field of endeavor, namely, EPS producing lactic acid bacterium. Given Degeest et al. teach that Lactobacillus sakei strains are known producers of EPS, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used any EPS producing lactic acid bacterium, including Lactobacillus sakei, and arrive at the present invention.

Regarding strain, while Degeest et al. teach Lactobacillus sakei 0-1, the reference does not explicitly disclose the 570 strain. However, given Degeest et al. teach the 0-1 strain produces EPS, it would have been obvious to one of ordinary skill in the art to have used any strain of Lactobacillus sakei known to produce EPS, including the 570 strain, and arrive at the present invention.

9. Claim 15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perry et al. ("Effect of Exopolysaccharide-Producing Cultures on Moisture Retention in Low Fat Mozzarella Cheese") and further in view of Tallgren et al. ("Exopolysaccharide-Producing Bacteria from Sugar Beets").

Regarding claims 15 and 31, Perry et al. disclose all of the claim limitations as set forth above. While Perry disclose EPS producing lactic acid bacterium, Streptococcus thermophilus and Lactobacillus delbrueckii, the reference does not explicitly disclose Leuconostoc mesenteroides or a bacterium that produces a homo-EPS.

Tallgren et al. teach that Leuconostoc mesenteroides strains are known producers of EPS (p. 862/Abstract, Introduction). Given Tallgren et al. teach Leuconostoc mesenteroides, it is clear that the bacterium would intrinsically produce a homo-EPS.

Perry et al. and Tallgren et al. are combinable because they are concerned with the same field of endeavor, namely, EPS producing lactic acid bacterium. Given Tallgren et al. teach that Leuconostoc mesenteroides strains are known producers of EPS, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used any EPS producing lactic acid bacterium, including Leuconostoc mesenteroides, and arrive at the present invention.

Regarding strain, while Tallgren et al. teach two different Leuconostoc mesenteroides strains, the reference does not explicitly disclose the 808. However, given Tallgren et al. teach the strains produce EPS, it would have been obvious to one of ordinary skill in the art to have used any strain of Leuconostoc mesenteroides known to produce EPS, including the 808 strain, and arrive at the present invention.

10. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degeest et al. ("Exopolysaccharide (EPS) biosynthesis by Lactobacillus sakei 0-1: production kinetics, enzyme activities and EPS yields").

Regarding claim 37, Degeest et al. disclose a culture of Lactobacillus sakei 0-1 (p. 471/Materials and Methods). Given Degeest et al. disclose a Lactobacillus sakei culture, since Lactobacillus sakei strains are known to produce EPS (p.470-471/Abstract, Introduction), it follows that the Lactobacillus sakei 0-1 and Lactobacillus sakei DSM 15889 are interchangeable.

Response to Arguments

11. Applicants' arguments filed 10 November 2010 have been fully considered but they are not persuasive.

Applicants submit that "[n]owhere in Perry is the Streptococcus thermophilus strain V3 taught or suggested." Applicants find that Perry does not teach or suggest the specific strains described in claim 1. Applicants argue that "Perry does not teach or suggest a composition suitable for forming a low fat cheese, the composition including a starter culture and an exopolysaccharide (EPS) fermentation culture wherein the EPS culture contains a viable lactic

acid microorganism selected from the group that includes Streptococcus thermophilus V3, Lactococcus lactis ssp cremoris 322, Lactobacillus sakei 570 and Leuconostoc mesenteroides 808, wherein the lactic acid microorganism is capable of producing an enzyme, and wherein the enzyme is capable of producing an EPS.

In this case, Perry et al. teach a starter culture composition for making a low-fat cheese comprising lactic acid bacterium that are capable of producing an exopolysaccharide (EPS) (Abstract, p. 799/Introduction/paragraph 3). Given Perry et al. disclose Streptococcus thermophilus, since Streptococcus thermophilus strains are known to produce EPS, absent evidence to the contrary, it necessarily follows that the Streptococcus thermophilus MR-1C strain disclosed by Perry et al. and Streptococcus thermophilus V3 could be used interchangeably.

Whether evidence shows unexpected results is a question of fact and the party asserting unexpected results has the burden of proving that the results are unexpected. In re Geisler, 116 F.3d 1465, 1469-70, 43 USPQ2d 1362, 1364-5 (Fed. Cir. 1997). The Applicants have failed to meet their burden.

While Applicants' show that each of the specific strains recited in the claims can change the rate of acidification by the starter culture, there is no evidence in the record that shows that other viable lactic acid microorganism capable of producing an EPS, as disclosed by Perry et al., Degeest et al. or Tallgren et al. would not also have this property. It is not clear if the ability to change the rate of acidification by the starter culture is a result of the specific strain or the type of bacterium, i.e. lactic acid bacteria capable of producing EPS.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIZABETH GWARTNEY whose telephone number is (571)270-3874. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ELIZABETH GWARTNEY/
Examiner, Art Unit 1781